

Research Project #9

Exploring Options for Using
Technology in Data Collection

Using Technology in Data Collection Objectives

- Improve timeliness
- Improve accuracy
- Improve usefulness
- Improve cost-effectiveness
- Establish or increase utilization of technology across transportation modes

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Project Plan

- Review Existing Technologies
- Identify New Technologies
- Apply Technologies to Needs
- Develop Pilot/Demo Project Descriptions

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Background

- FAA - 7 current technology projects
- FRA - 6 current technology projects
- MARAD/USCG - 13 current technology projects
- NHTSA - 5 current technology projects
- FMCSA - 8 current technology projects
- FHWA - 7 current technology projects
- RSPA - 7 current technology projects
- FTA - 8 current technology projects

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Overall Method

- Technology Transfer Opportunities
- Identify “New” Technologies
- Map Technologies to Needs

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Prioritization Attributes

- | | |
|---------------------------|--------------------------------|
| ● Cost-effectiveness | ● Accessibility |
| ● Feasibility | ● Strategic Importance |
| ● Likely Impact | ● Adaptability |
| ● Anticipated Cost | ● Cross-Functional Application |
| ● Maintainability | ● Industry Buy-in |
| ● Potential for Expansion | |

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Eight Technologies

- Smart Cards
- Performance Monitoring
- Hands-Free Operation
- Vehicle Usage Monitoring
- Imaging
- Voice Activation
- Automated Control
- Pattern Recognition

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Smart Cards

- Licensing Applications
- Highway Data
- CDL
- Security
- Qualifications
- Certifications



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Performance Monitoring



- Driver Control
- Commercial Vehicles
- Shipping
- Traffic Control
- Security Personnel

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Hands-Free Operation

- Law Enforcement
- CMV Inspection
- Pipeline Inspection
- Bridge & Tunnel Inspection
- Highway Data
- Ship Inspection



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Vehicle Usage Monitoring



- Driver Control
- Commercial Vehicle

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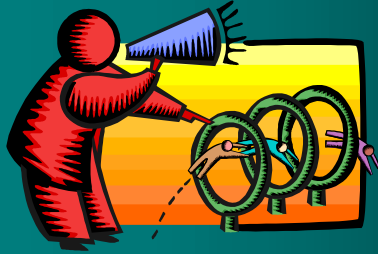
Imaging

- Traffic Monitoring
- Pipeline Incidents
- 3-D X-ray
- Millimeter Wave



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Voice Activated Data Input

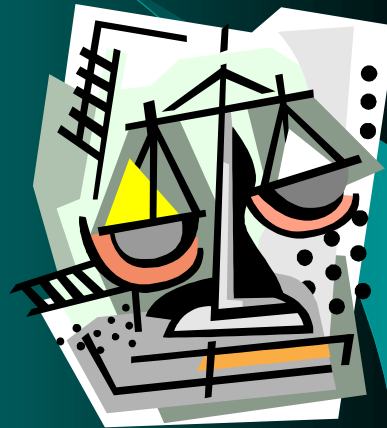


- Vehicle Interlock
- Secure Operation
- Shipping

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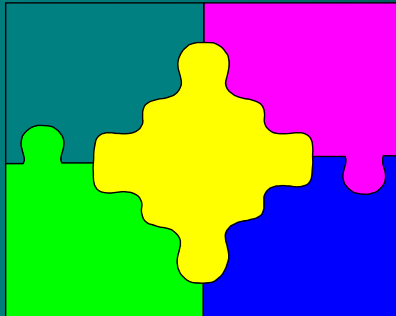
Automated Control Device

- Aircraft Monitoring
- Telemetry
- Hazard Identification



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Pattern Recognition



- Security
- Scent Detection
- Pipeline Incidents

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Conclusion

- Top 3 Technologies for Field Testing:
 - Electronic Identification/Security (Smart Cards)
 - Operator Performance Monitoring
 - Hands-Free Operation
- Develop Several Pilots/Demonstrations